

PARAMUNNA QUADRATIFRONS, NEW SPECIES,
THE FIRST RECORD OF THE GENUS IN THE
NORTH PACIFIC OCEAN (CRUSTACEA:
ISOPODA: PLEUROGONIIDAE)

Ernest W. Iverson and George D. Wilson

Abstract.—*Paramunna quadratifrons* n. sp., described from the southern California borderland, represents the first record of the genus in the north Pacific Ocean.

The asellote isopod genus *Paramunna* is predominantly a southern hemisphere Antarctic and sub-Antarctic genus with a few north Atlantic Ocean representatives. Most records of *Paramunna* are from intermediate depths of the continental shelf and slope regions while a few species occur in the deep sea. Pacific Ocean records were previously limited to those reported by Menzies (1962) from off southern Chile. The species described here is the first *Paramunna* reported from the north Pacific Ocean. This single record is not surprising in view of the relative rarity of pleurogoniids in both population sizes and number of species in the northern hemisphere (Wilson, 1980).

This paper is based on material collected during the second year benthic survey of the southern California borderland (Fauchald and Jones, 1978) in connection with the Southern California Baseline Studies and Analysis program (FY 1977). All specimens were collected from a single spade corer sample (0.16 m² surface area) taken at a depth of 197 meters on North-West Tanner Bank, approximately 130 kilometers southwest of Los Angeles, California. Drawings were made with the aid of camera lucida and checked for detail at magnifications up to 430 power.

Pleurogoniidae Nordenstam, 1933, *sensu* Wilson (1980)

Paramunna G. O. Sars, 1866

Type-species.—*Paramunna bilobata* Sars, 1866.

Diagnosis.—Body broad, flat, tergal plates extending laterally well beyond coxae. Cephalon often with anterior protuberances: knobs, spines, or flattened curved plates. Lateral margin of pleotelson always with spines. Antenna article 3 with spines or knobs. Mandibular molar distally truncate.

Remarks.—This diagnosis should be regarded as preliminary until the genus is properly revised. However, the above concept is more restricted than the one currently recognized in the literature (e.g., Menzies, 1962).

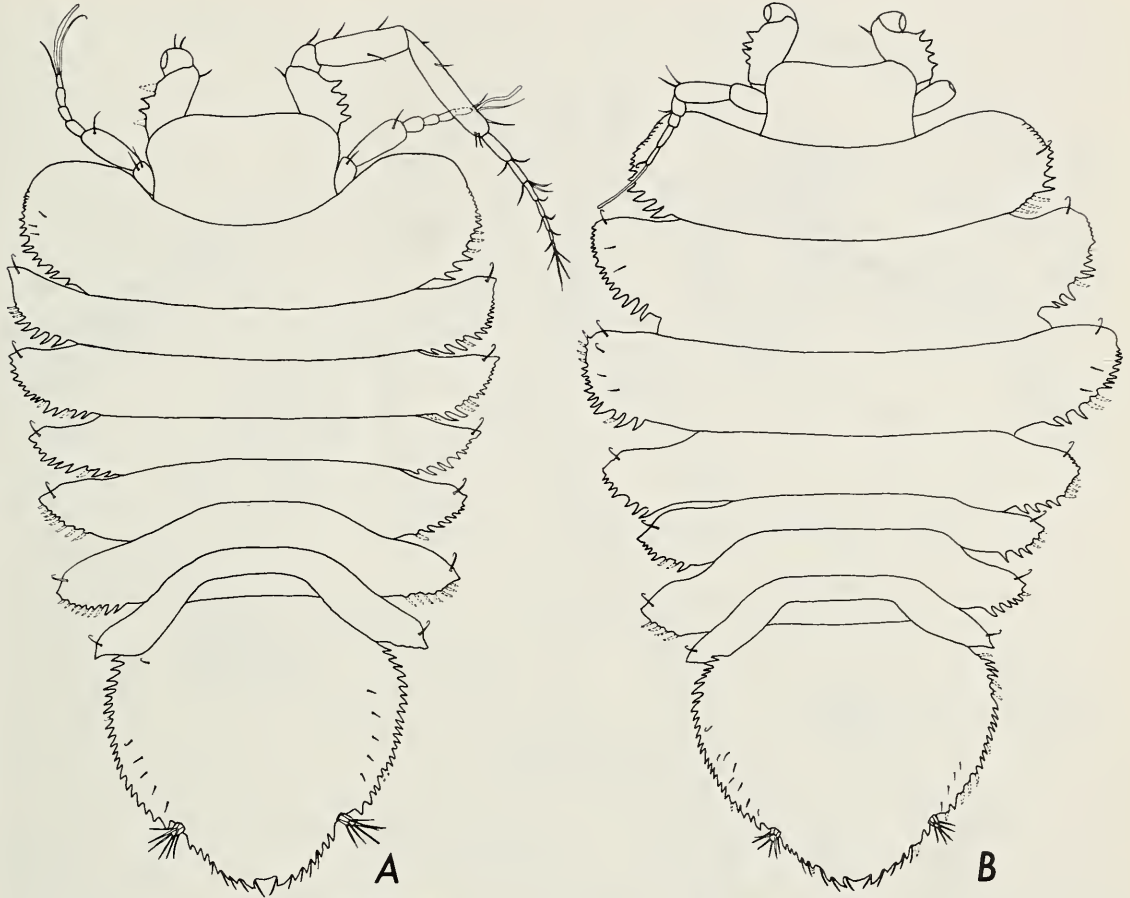


Fig. 1. *Paramunna quadratifrons*: A, Male holotype; B, Female allotype.

Consequently, some species should probably be returned to *Austrimunna* (Wilson, 1980).

Paramunna quadratifrons, new species

Figs. 1–4

Material examined.—Station 81832, 197 m, 33°53.24'N, 119°23.35'W, 4 males and 3 females from a light brown, coarse sand and shell sediment, collected 24 August 1978 by the R/V *Thompson*. Holotype male 1.23 mm body length (USNM 173915), allotype female 1.29 mm body length with 4 eggs (USNM 173916) deposited in the National Museum of Natural History, Smithsonian Institution, Washington, D.C. Paratypes have been deposited as follows: 1 male (CASIZ 015902) and 1 female (CASIZ 015903), California Academy of Sciences, San Francisco, California, and 2 males and 1 female (AHF 781), Allan Hancock Foundation, University of Southern California, Los Angeles, California.

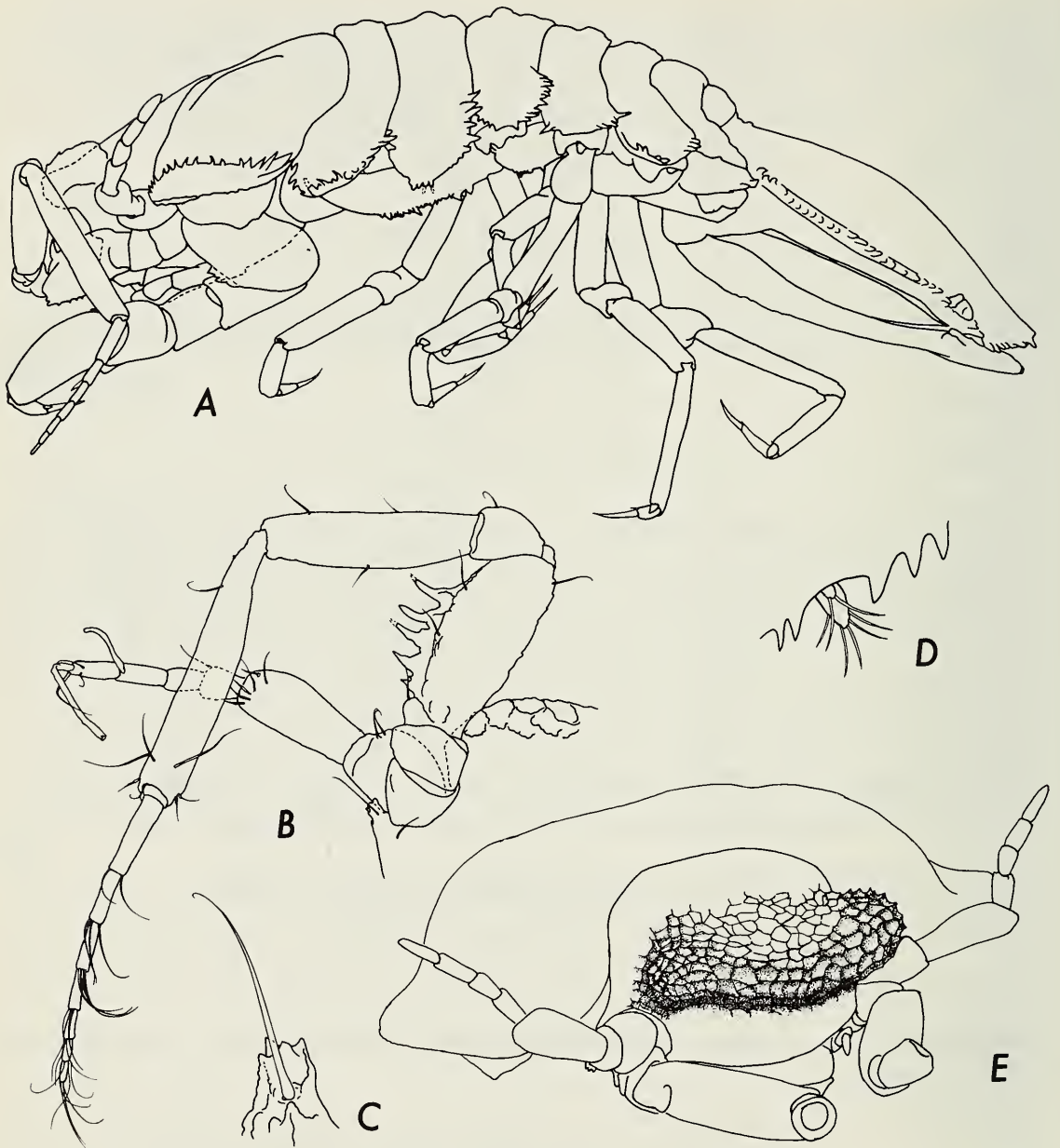


Fig. 2. *Paramunna quadratifrons*, male: **A**, Lateral habitus; **B**, Lateral margin of cephalon with antennula, antenna and ocular peduncle; **C**, Ocular peduncle; **D**, Right uropod; **E**, Cephalon, anterior oblique view, cuticular structures shown only on rostral lobe.

Diagnosis.—Cephalon anterior margin expanded into large plate-like shelf, somewhat concave dorsally, anterolateral angles rounded, more robust in male. Eyes absent, ocular peduncles very reduced. Lateral margins of pereonites heavily denticulate, a small hooked seta dorsally near apex of each pereonite. Antenna third article with 4–5 (typically 4) teeth dorsally.

Supplemental description.—Body broadest anteriorly at pereonite 2, tapering posteriorly. Pereonite 1 more robust in male compared to female,

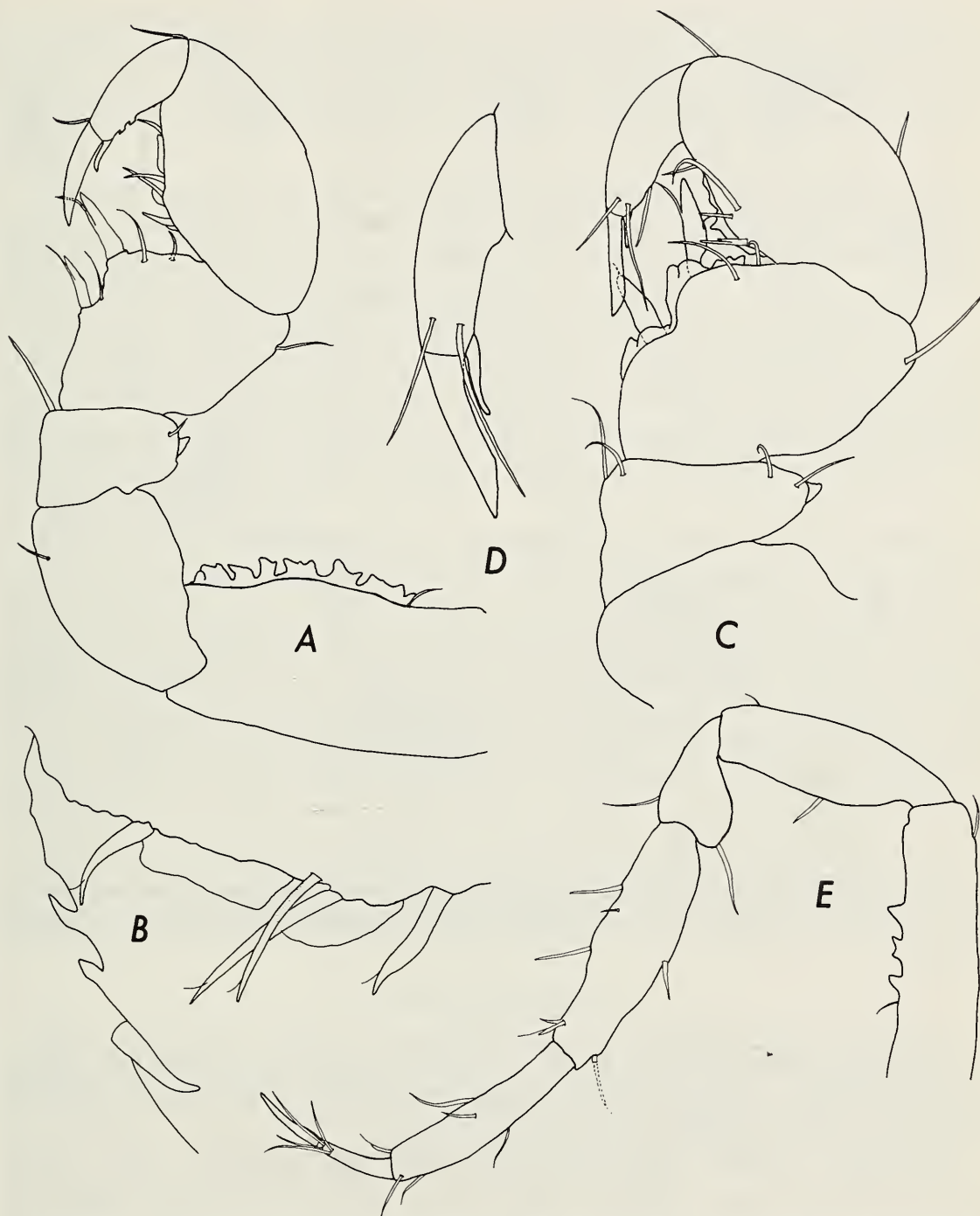


Fig. 3. *Paramunna quadratifrons*, female: A, Pereopod 1; B, Inner margins of pereopod 1 dactylus and propodus. Male: C, Pereopod 1; D, Pereopod 1 dactylus; E, Pereopod 7.

lateral margin truncate; pereonites 2–4 also sexually dimorphic, noticeably lengthened in ovigerous female, laterally truncate, in male acutely pointed; pereonites 5–7 laterally acute in both sexes. Pleotelson pyriform, somewhat concave at point of uropod attachment; apex rounded.

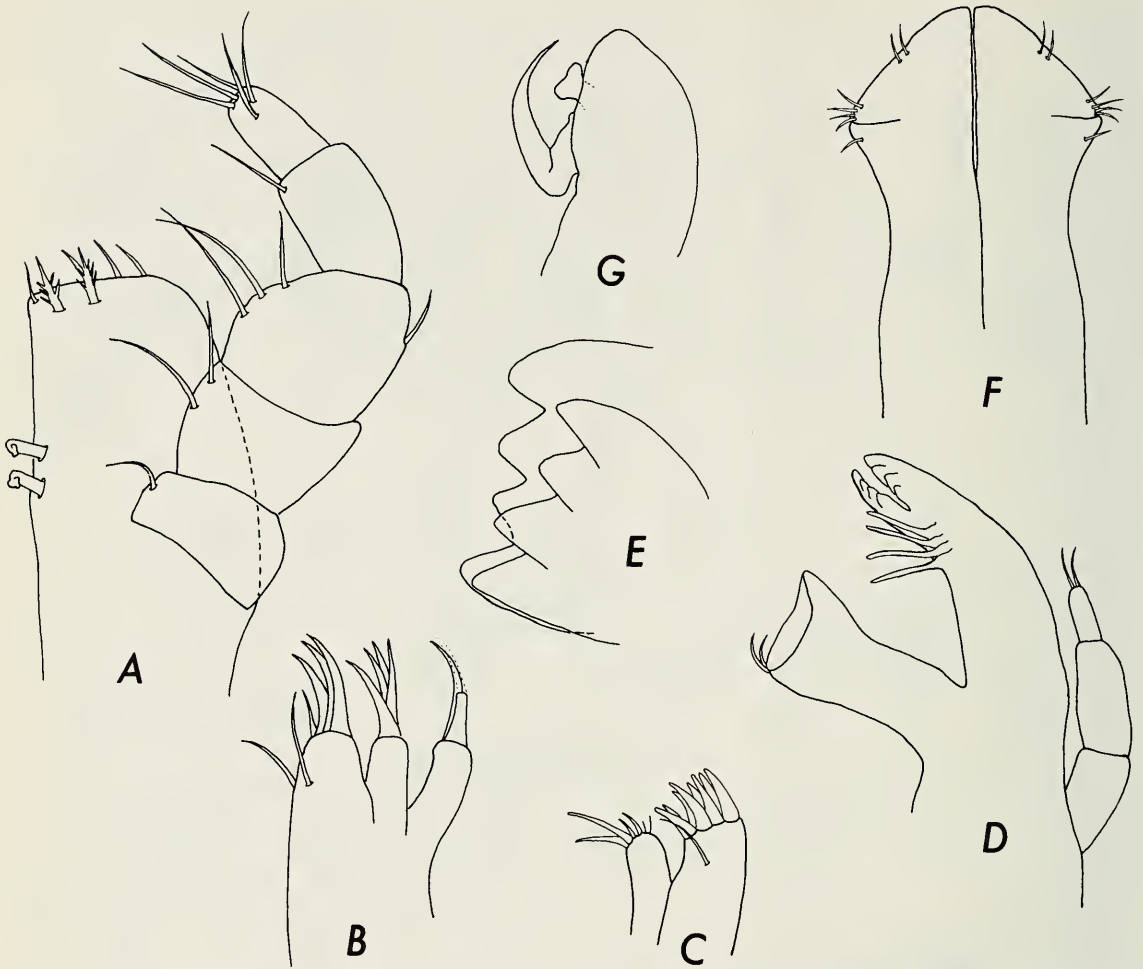


Fig. 4. *Paramunna quadratifrons*: A, Maxilliped; B, Second maxilla; C, First maxilla; D, Left mandible; E, Incisor process and lacinia mobilis of same; F, Male pleopod 1; G, Male pleopod 2.

Antennula with 6 articles; third, fifth and sixth articles subequal in length, fourth shortest; terminal article tipped with several setae and single long aesthetasc. Antenna flagellum with 6–8 articles.

Maxilliped: Endite with 2 coupling hooks, palp articles 2 and 3 much broader than articles 4 and 5, distal article about three-fourths length of fourth article. First maxilla outer lobe apically with 8 stout setae, inner lobe apically with 2 long and 2 short setae. Second maxilla bilobed, inner lobe with 4 apical and 2 subapical setae; inner lappet of outer lobe with 4 setae, outer lappet with 2.

Left mandible: Incisor process and lacinia mobilis each with 4 teeth, setal row with 4 simple setae; molar process cylindrical, distally truncate; distal article of palp short, about half length of middle article, with 2 short setae apically.

Pereopod 1 strongly subchelate, more robust in male; claw of dactylus chisel-like, propodus inner margin armed with about 4 small unequally bifid setae, carpus armed with 2 large unequally bifid setae. Pereopods 1–3 with denticles on bases. Pereopods 2–7 similar, not notably lengthened posteriorly.

Male first pleopod sagittate, medially fused for about three-fourths length, distal tip broadened laterally into bifurcate lateral corners each with tuft of several short setae, apex posteriorly pointed. Uropods biramous, basal article absent, inserted on lateral margin.

Remarks.—The extreme reduction of the eyes and ocular peduncles indicates that this species has its evolutionary roots in the deep sea (Hessler *et al.*, 1979). It is likely that this species or its ancestors migrated through the deep sea from the Antarctic center of pleurogoniid diversity (Wilson, 1980) to its present location. By this reasoning *Paramunna quadratifrons* is an emergent species.

The fact that seven individuals were collected in only one of the 8 replicate cores taken at the North-West Tanner Bank station suggests a very patchy distribution. Isopods collected in the same spade core sample with *Paramunna quadratifrons* include: *Ilyarachna acarina* Menzies and Barnard, an upper continental slope representative of a predominately deep-sea genus, and *Silophasma geminatum* (Menzies and Barnard), a continental shelf species which is widespread throughout the southern California bight. The pleurogoniid, *Pleurogonium californiense* Menzies was collected in another replicate.

Etymology.—The specific name *quadratifrons* is a combination of the Latin words *quadratus* meaning squared and *frons* meaning forehead, referring to the anterior margin of the cephalon.

Acknowledgments

This study was, in part, supported by the Southern California Baseline Studies and Analysis program (FY 1977) funded by the Bureau of Land Management (U.S. Department of the Interior), contract number AA550-CT6-40 with Science Applications, Inc., La Jolla, California. This is contribution No. 378 of the Allan Hancock Foundation.

Literature Cited

- Fauchald, K., and G. F. Jones. 1978. Variation in community structure of shelf, slope and basin macrofaunal communities of the southern California bight.—*In* Final report on the baseline study, 1977–78, prepared by Science Applications, Inc. for the Bureau of Land Management. 2(19):1–167.
- Hessler, R. R., G. D. Wilson, and D. Thistle. 1979. The deep-sea isopods: a biogeographic and phylogenetic overview.—*Sarsia* 64(1–2):67–75.
- Menzies, R. J. 1962. The zoogeography, ecology, and systematics of the Chilean marine

isopods. Reports of the Lund University Chile Expedition 1948-49:42.—Lunds Univ. Årsskr., N.F. Avd. 2, 57(11):1-162.

Sars, G. O. 1866. Beretning omeni Sommeren 1865 foretagen zoologisk Reise ved kysterne af christianias og christiansands stifter.—Nyt. Mag. Naturvid. Christiania 15:84-128.

Wilson, G. D. 1980. New insights into the colonization of the deep sea: Systematics and zoogeography of the Munnidae and the Pleurogoniidae nov. comb. (Isopoda: Janiroidea).—Journal of Natural History 14:215-236.

(EWI) Allan Hancock Foundation, University of Southern California, University Park, Los Angeles, California 90007; (GDW) A-002 Scripps Institution of Oceanography, La Jolla, California 92093.